

CLAIMS

- 5 1. An R.F. antenna switch for coupling either a high-loss port or a low-loss port to a common port, comprising:
an unequal power splitter with
the common port, the high-loss port and the low-loss
port,
10 a high-loss path coupled between the common port and the high-loss port, and
a low-loss path coupled between the common port and the low-loss port;
a switching element having
15 an input coupled to the low-loss port, and
an output; and
a first terminating element coupled to the output of the switching element, wherein the low-loss port is terminated with a characteristic impedance of the unequal power splitter when the switching element is switched on.
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2. The R.F. antenna switch according to claim 1, wherein the unequal power splitter has at least one of a plurality of low-loss paths and a plurality of high-loss paths.
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3. The R.F. antenna switch according to claim 1, wherein the unequal power splitter is a directional coupler with a primary line and a coupled line, the common port and the low-loss port being coupled to opposite ends of the primary
30 line, respectively, the high-loss port being coupled to the coupled line.
4. The R.F. antenna switch according to claim 3, wherein the directional coupler further comprises an isolated port, the
35 high-loss port and the isolated port being coupled to opposite ends of the coupled line, respectively.

5. The R.F. antenna switch according to claim 4, wherein the isolated port is coupled to a second terminating element, the second terminating element terminating the isolated port with a characteristic impedance of the coupled line.
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6. The R.F. antenna switch according to claim 4, wherein the low-loss port and the isolated port are arranged on opposite sides of the directional coupler with respect to a coupling direction.
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7. The R.F. antenna switch according to claim 1, further comprising a control circuit for controlling the switching element.
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8. The R.F. antenna switch according to claim 7, wherein the control circuit is coupled to the common port or the low-loss port.
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9. The R.F. antenna switch according to claim 7, wherein the control circuit has a control input terminal for inputting a control signal.
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10. The R.F. antenna switch according to claims 9, wherein the control circuit has a low-pass filter coupled between the control input terminal and the switching element.
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11. The R.F. antenna switch according to claim 3, further comprising a supply circuit for supplying a voltage or a current, the supply circuit being coupled to the coupled line.
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12. The R.F. antenna switch according to claim 11, wherein the supply circuit is coupled to the high-loss port or the isolated port.
13. The R.F. antenna switch according to claim 11, wherein the supply circuit has a supply input terminal for inputting a supply voltage.

14. The R.F. antenna switch according to claim 11, wherein the supply circuit has a low-pass filter coupled between the supply input terminal and either the high-loss port or the isolated port.
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15. The R.F. antenna switch according to claim 1, wherein the R.F. antenna switch serves for coupling the common port to either a first antenna which is coupled to the low-loss port or a second antenna which is coupled to the high-loss port.
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16. The R.F. antenna switch according to claim 1 wherein the R.F. antenna switch serves for coupling either the low-loss port or the high-loss port to an antenna which is coupled to the common port.
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17. An R.F. device for at least one of sending and receiving an R.F. signal, the R.F. device having an R.F. antenna switch, the R.F. antenna switch comprising:
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- an unequal power splitter with
- a common port, a high-loss port and a low-loss port,
- a high-loss path coupled between the common port and the high-loss port, and
- a low-loss path coupled between the common port and the low-loss port;
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- a switching element having
- an input coupled to the low-loss port, and
- an output; and
- a first terminating element coupled to the output of the switching element, wherein the low-loss port is terminated with a characteristic impedance of the unequal power splitter when the switching element is switched on.
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18. The R.F. device according to claim 17, further comprising a first antenna, the first antenna being an internal antenna coupled to the low-loss port.
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19. The R.F. device according to claim 18, wherein the first antenna is a positioning system antenna or a mobile phone antenna.

5 20. The R.F. device according to claim 17, further comprising a first external antenna connector coupled to the low-loss port.

10 21. The R.F. device according to claim 20, further comprising a first antenna, the first antenna being an external antenna coupled to the first external antenna connector.

15 22. The R.F. device according to claim 20, further comprising a second external antenna connector coupled to the high-loss port.

20 23. The R.F. device according to claim 22, further comprising a second antenna, the second antenna being an external antenna coupled to the second external antenna connector.

24. The R.F. device according to claim 18, further comprising a second antenna, the second antenna being an internal antenna coupled to the high-loss port.

25 25. The R.F. device according to claim 24, wherein the second antenna is a positioning system antenna or a mobile phone antenna.

30 26. The R.F. device according to claim 24, wherein the second antenna is an active antenna.

27. The R.F. device according to claim 17, wherein the R.F. device is a mobile phone.

28. An R.F. antenna switch, comprising:

a directional coupler with a primary line and a coupled line;

5 a common port and a low-loss port being coupled to opposite ends of the primary line, respectively, and a high-loss port being coupled to the coupled line;

a switching element having an output and an input coupled to the low-loss port; and

10 a first terminating element coupled to the output of the switching element, wherein the first terminating element is configured such that the low-loss port is terminated with a characteristic impedance of the directional coupler in response to a switching of the switching element.

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